STATE OF SOUTH CAROLINA

BEFORE THE PUBLIC SERVICE COMMISSION

DOCKET NO. 2019-239-E

In the Matter of:	)	
Dominion Energy South Carolina, Inc.'s Request for Approval of an Expanded Portfolio of Demand Side Management Programs and a Modified Demand Side Management Rate Rider	)	DIRECT TESTIMONY OF ELIZABETH CHANT ON BEHALF OF SOUTH CAROLINA COASTAL CONSERVATION LEAGUE, SOUTH CAROLINA NAACP, AND SOUTHERN ALLIANCE FOR CLEAN ENERGY

INTRODUCTION

Q. PLEASE STATE YOUR NAME, POSITION, AND BUSINESS ADDRESS.

A. My name is Elizabeth Chant. I am a Managing Consultant at Optimal Energy. My business address is 10600 Route 116, Hinesburg, VT 05461.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?

A. I am testifying on behalf of the South Carolina Coastal Conservation League, ("CCL"), the South Carolina State Conference of the NAACP ("SC NAACP"), and the Southern Alliance for Clean Energy ("SACE").

Q. PLEASE SUMMARIZE YOUR QUALIFICATIONS AND WORK EXPERIENCE.

A. I graduated from Georgetown University in 1982 with a Bachelor of Science in Business Administration, with a concentration in Finance. I stayed at Georgetown University, working in academic administration, first at two different research centers

within the Business School, and then, from 1985 to 1988, as Director of MBA Admissions at the Business School. I continued in academic administration from 1989 until 1991, as Publications Director at the Lincoln Institute of Land Policy in Cambridge, Massachusetts, and then was a self-employed consultant on land and tax policy issues for five years.

I have worked in energy efficiency for the last 24 years, beginning in 1995, when I started as the Administrative Coordinator for the Weatherization Program at Champlain Valley Office of Economic Opportunity (CVOEO), responsible for income qualification and financial reporting for the weatherization program. From 1997 until 2002, I was with Vermont Energy Investment Corporation (VEIC), as Multifamily Program Manager, responsible for the design, development, and deployment of the Residential Energy Efficiency Program (REEP), a program that served affordable multifamily housing. When VEIC launched Efficiency Vermont, the nation's first energy efficiency utility, in 2000, REEP was folded into Efficiency Vermont's programming, and I continued to lead the program.

In 2002, I returned to CVOEO to serve as Weatherization Director, responsible for implementation of low-income weatherization services by the largest Weatherization Assistance Program (WAP) provider in Vermont. I headed a staff of 25 auditors and crew, plus a dozen heating and weatherization subcontractors. I increased productivity by 40 percent, and then, during the period of the American Recovery and Reinvestment Act, increased production by 50 percent.

I returned to VEIC in 2010 to lead its proposal to provide services as the D.C. Sustainable Energy Utility (DCSEU) in Washington, D.C. When VEIC won the contract, I relocated to Washington, D.C., in 2011, to launch low-income multifamily programming there, a "quick start" program that installed measures in more than 5,000 units in nine months. I served as Low-Income Multifamily Program Manager for the DCSEU through 2012, when I moved to VEIC's Consulting Division as a Senior Consultant. I was promoted to Principal Consultant in 2014. I worked on a variety of consulting projects, including the development of a business plan for a public-purpose energy services company and a review of the use of commercial property assessed clean energy (C-PACE) financing for affordable multifamily buildings.

I left VEIC in 2018, and came to Optimal Energy where I now am a Managing Consultant. My responsibilities at Optimal Energy include providing technical advising to state energy efficiency councils in Delaware, Massachusetts, and Rhode Island. Earlier this year, I spent significant time working on parts of a potential study that we completed for the State of New Jersey Board of Public Utilities (NJ BPU); we are now advising the NJ BPU on establishing performance metrics and incentive / penalty structures to achieve the State's efficiency goals.

Q. HAVE YOU TESTIFIED PREVIOUSLY BEFORE THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA (THE "COMMISSION")?

A. No, I have not. I have testified before the Nova Scotia Utility and Review Board and the Vermont Public Utility Commission.

Q. WHAT IS DOMINION ENERGY SOUTH CAROLINA REQUESTING THAT THE COMMISSION APPROVE IN THIS PROCEEDING?

A. Dominion Energy South Carolina, Inc. ("DESC" or "the Company") is requesting approval of an expanded portfolio of demand side management programs and modifications to the demand side management rate rider.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to review the request and, based on my experience, provide an analysis of the expanded portfolio, the rate rider, and the rationales that have been provided for each. I also highlight additional missed opportunities by DESC for cost-effective energy efficiency through more effective programming.

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS AND RECOMMENDATIONS WITH REGARD TO DESC'S APPLICATION.

A. I applaud DESC's application to expand energy efficiency (EE) programs over the next five-year period. DESC is delivering cost-effective programs, and its plan to expand service to increase budgets and savings for South Carolina ratepayers is a positive step toward a cleaner energy future for South Carolina. That said, more can and should be required of DESC.

Although DESC shows increased energy efficiency, it has just begun to scratch the surface – with low attainment relative to potential. The proposed five-year plan provides an opportunity for DESC to increase its efforts and investment in cost-effective energy efficiency and substantially reduce the electric use and overall ratepayer costs of South Carolinians.

In summary, I recommend the following changes to DESC's proposal:

1) increase EE goals by requiring DESC to ramp up to a minimum of one percent annual savings as a percent of total annual sales by the end of year five;

2) increase service beyond what has been proposed to historically underserved market sectors (low income, moderate income, multifamily, and small business);

3) set boundaries on DESC's abilities to change programs over the five-year period;

4) maintain DESC's existing 6 percent allocation of shared savings as sufficient incentive for DESC's EE programs, as proposed, given expected increases in the Net Present Value Benefit (NPV); structure any increase in shared savings as at-risk, earned on a sliding scale by DESC only if and when savings reach 0.8 percent per year of total annual sales;

5) set a lower barrier to re-entry in the rate rider for commercial and industrial accounts that have opted out;

6) require that action be taken to increase energy efficiency and demand response (DR) programming to address winter peak, as required by the Commission in prior proceedings.

My testimony will address each of these points in turn.

DESC SHOULD INCREASE EE GOALS TO RAMP UP TO A MINIMUM OF ONE PERCENT ANNUAL SAVINGS AS A PERCENTAGE OF TOTAL PRIOR YEAR SALES BY THE END OF YEAR FIVE.

Q. PLEASE COMMENT ON DESC'S ENERGY EFFICIENCY GOALS.

A. The EE goals established in the plan are not as aggressive as they can and should be. With nine years of program experience, DESC is experienced and the programs are mature. As such, DESC should be delivering savings levels over 1 percent.

The American Council for an Energy-Efficiency Economy (ACEEE) regularly provides industry-wide data on these metrics. In its 2018 State Energy Efficiency Scorecard, ACEEE provides data on achieved savings for all states. In 2017, there were 23 states that had already achieved savings at or above 0.7 percent of annual sales (the level proposed for years 5 and 10 in the DESC Potential Study on a reduced base, which will be discussed below); 13 states that had achieved electric efficiency savings at or above 1 percent; 3 states achieved savings of more than 2 percent.[1] These data from ACEEE are on achieved savings; they are not simply goals.

The DESC Potential Study suggests achievable incremental annual savings under the expanded program scenario of 0.7 percent in year 5.[2] Yet that 0.7 percent savings is on a base that excludes approximately 25 percent of DESC total sales: "This calculation, shown annually in Table 12, excludes the forecasted sales from opt-out customers."[3] So, the 0.7 percent savings on a reduced base that excludes opt-out customers would be roughly equivalent to 0.5 percent of total forecasted sales.

While I appreciate the proposal to ramp programs up to more than double incremental savings rates over the five-year period (from 0.3 percent of available sales in 2020 of current program scenario to 0.7 percent in 2024 under expanded program

[1] American Council for an Energy-Efficient Economy, *2018 State Energy Efficiency Scorecard*, December 2018 update, Table 8, page 28, https://aceee.org/research-report/u1808.
[2] ICF, Dominion Energy South Carolina: 2020-2029 Potential and PY10-PY14 Program Plan, Final Report," June 2019 (hereafter "DESC Potential Study"), Table 12, page 25.
[3] DESC Potential Study, page 25.

scenario), it is insufficient. And, I note that if such a level of annual incremental savings can be gained within three years, as shown in the study and abstracted in the table below, it is curious that savings cannot continue to be expanded in the ensuing years. The DESC Potential Study provides projected incremental annual savings in the expanded program scenario as reaching a new higher level of savings quite quickly, but then plateauing instead of continuing to expand.[4]

Year	Incremental Annual Savings, Expanded Program Scenario
2020	0.5%
2021	0.6%
2022	0.7%
2023	0.7%
2024	0.7%
2025	0.6%
2026	0.6%
2027	0.6%
2028	0.6%
2029	0.7%

Q. WHAT IS THE BASIS FOR DESC'S ENERGY SAVINGS GOALS?

A. DESC bases its projected energy savings on a study it commissioned by ICF (the "DESC Potential Study"). The DESC Potential Study includes DESC's assessment of energy savings potential in DESC territory over a ten-year study period under two very specific scenarios (current programs and expanded programs) and then provides a proposed five-year EE program plan.

Q. WHAT ARE THE LIMITATIONS OF THE DESC POTENTIAL STUDY?

[4] DESC Potential Study, Table 12.

A. The DESC Potential Study provides two very specific cases of program potential, rather than defining the full maximum achievable potential of energy efficiency in its territory. In this regard, it succumbs to what experts define as the number one pitfall of potential studies.

According to the Regulatory Assistance Project (RAP), a common and problematic pitfall of potential studies is what we see here: defining program-achievable savings. Why is that so hazardous? According to the authors of this report, "too often projections of achievable savings are seen as precise forecasts or even upper limits on what level of demand reduction can be attained through energy efficiency initiatives."[5]

In describing its methodology, the DESC Potential Study reports: "The optimization varied the participation for each measure in a range based on the historical program performance and other variables used in estimating program participation." [6] This is concerning as it seems to predict future potential bounded by the constraints of past programming. In EE programming, like the energy industry itself, change has been the only constant over the last twenty years. While the past is useful in providing information, assessment of future potential should not be bounded by past program performance. Certainly, in high-performing programs, I do not see that.[7]

[5] Kramer, Chris, and Glenn Reed, "Ten Pitfalls of Potential Studies," Regulatory Assistance Project, 2012 (hereafter "RAP Report").
[6] DESC Potential Study, page 3.
[7] In fact, high-performing programs establish goals or are challenged to have goals that push them past those historical barriers. In moving into its second five-year performance period, the District of Columbia Sustainable Energy Utility was required by the Department of Energy and Environment to dramatically increase savings with no prescription on how it would or even could be done. Sometimes that is the impetus needed to push programs to more and more effective and efficient levels of performance. Efficiency Vermont, as another example, has from its earliest years, defined programming in its planning that was

The RAP Report states that, "[e]ven under a single set of budget constraints, achievable savings potential may differ in practice from the level that has been projected. Other factors, such as effective program design and the strength of motivation on the part of the utility, can significantly influence what level of savings will ultimately be realized. As such, **achievable savings projections should not necessarily be considered maximum limits**, even if budgetary allocations cannot be increased."[8] (Emphasis added.)

Q: ARE THERE OTHER LIMITATIONS TO THE DESC POTENTIAL STUDY AND ITS RESULTS?

A: Yes, the DESC Potential Study also succumbs to other common pitfalls identified in the RAP Report.

First, in modeling program participation, the DESC Potential Study defines a series of "payback curves," which are used in modeling program participation, based on payback.[9] While payback is one metric that customers look at, it is not the only factor important to customer acceptance rates. I will refer again to the RAP Report, which lays this out as another of the most common pitfalls: "Some studies model behavior using technology adoption curves, which generally assume that rates of consumer adoption are a function of simplified economic inputs, such as incentive levels and measure costs. Although these models can be informative, they often overlook additional key factors that can be more uncertain but equally important in influencing consumer choice."[10] This statement has only become more true as we have learned more and more about how

intentionally designed to develop "new market initiatives" that would address technologies, program campaigns, and market conditions that may not be known at the time the plan was written.

[8] Kramer, Chris, and Glenn Reed, "Ten Pitfalls of Potential Studies," Regulatory Assistance Project, November 2012, page 5.

[9] DESC Potential Study, Appendix C.

[10] RAP Report, page 7.

consumers make choices and the myriad of factors that are outside of an economic calculus. It is the basis of much of the behavioral programming that is now becoming more common in the energy efficiency industry.

It is also worth noting that much of the basis of the payback curves presented in the DESC Potential Study is quite dated and not transparent. Of the six sources cited,[11] the dates of the studies range from 2006 to 2014. With the energy efficiency industry moving rapidly into new models and ways of understanding customer behavior, data that are five to fifteen years old need to be refreshed. Additionally, of the six citations, four were proprietary to ICF, with the utility location and identification withheld as confidential, so comparability in areas such as size, market maturity, and demographics, are impossible to assess.

Last, I am concerned that, by focusing only on program achievable potential, the analysis is not open to the full range of measures and efficiency programming initiatives that can drive and deliver effective energy efficiency in the future. The RAP Report identifies this as the fourth most common pitfall, and comments that "[p]otential studies frequently fail to consider certain technologies that may considerably reduce energy demand in future years. Other savings opportunities may be overlooked because they do not strictly fall into the category of distinct, installable measures."[12] The authors identify

[11] DESC Potential Study, Appendix C, Payback Acceptance Data Sources, pages 83-84. Citations include Commercial ICF survey of 231 non-residential customers in 2013 for a confidential utility; three references to Residential ICF survey of 300 residential customers in 2013 for a confidential utility; Energy Information Administration industrial data accessed in 2014, and a 2006 national survey of residential customers conducted by the Shelton Group.

[12] As an example, proper use of diagnostic equipment like a blower door to guide air-sealing can help a program to improve savings by increasing the amount of air leakage reduction and the efficiency with

the problem and its effects: "a study that only looks at the savings that can be achieved from basic measure installation may miss some or all of these types of savings opportunities, leading to an undervaluing of achievable savings."[13]

Q: ARE THERE SPECIFIC EXAMPLES OF OVERLOOKED PROGRAMS OR MEASURES THAT YOU WOULD POINT TO?

A: There are a several purported barriers that could be overcome to expand potential of the programs, and increase the level and rate of savings for DESC. I discuss some of these in the section below on underserved markets. Even in DESC markets not considered underserved, there are additional unrealized program potentials, such as:

- The proposed new Municipal LED program only targets 50 percent of the available market in 5 years, yet DESC has not provided any reason for not aiming for full market saturation in that time. There are benefits to technology- and market-specific campaigns like this, which set aggressive goals and build a groundswell among a specific market and / or technology type.
- There is no mention of any upstream programming[14] for lighting in the commercial and industrial ("C&I") sector. Upstream programming, now in use in many efficiency programs, targets incentives to manufacturers and distributors instead of directly to the consumer. EE programs have discovered that by working

which it is attained. It can also improve program savings by quantifying the available savings and providing targets for work crews to attain..

[13] RAP Report, page 7.

[14] "Upstream" programming is efficiency programming that applies incentives to equipment or product manufacturers, distributors, or retailers, rather than to the ultimate consumer. The incentives are generally designed to reduce the price for the consumer, but may also include an incentive for the suppliers. They help to increase participation by (1) not requiring consumers to apply for rebates, and (2) motivating manufacturers, distributors, and retailers to sell more products. In the best cases, they work to align the motivations of the entire supply chain to increase sales of efficient equipment and products.

closely with these upstream market actors, and aligning with the desire of the distribution chain to move more product, higher amounts of efficient equipment and product can be moved into the market at a lower cost to the utility. This has proven to be a highly effective market approach for many states.

- The level of penetration into the C&I market through both the C&I EnergyWise and the Small Business Direct Install programs are both very low at fewer than 1000 participating projects per year, and very little growth (less than 10 percent) from the start of the program plan in PY10 through the end in PY14.[15]
- Similarly, while the strength of trade ally relationships is discussed expansively in testimony by Company witness Griffin,[16] these allies do not seem to have been effectively leveraged to deliver the benefits available from upstream HVAC programming. Like C&I lighting, upstream HVAC programs have proven to be highly effective at generating cost-effective savings.
- In her testimony, DESC witness Griffin states that the low-income program had served nearly 11,000 homes through PY8 since its start in 2014. While DESC proposes to expand the program to 4,243 customers in Year 10, there is only minor expansion after that, growing to 4,471 homes in Year 14, for a total of 21,781 homes in five years. This is less than 5 percent growth over 4 years. I recommend that the growth trajectory increase much more dramatically over the five years. Were it to double, for example, in a relatively smooth path from 4,243

[15] DESC Potential Study, pages 74-76
[16] Griffin testimony, page 12-13.

in PY10 to 8,486 in PY14, approximately 10,000 additional low-income households would benefit.

- That same low rate of growth is evident in the Home Energy Check-up Program, with projection that the program would increase by 5 percent the number of homes addressed annually from PY10 through PY14. Additionally, the rate of savings for the program is approximately 10 percent of a home's annual use (at approximately 1300-1500 annual kilowatt hour savings). With the expansion of measures to include air sealing, insulation, and other home shell measures, I would hope to see savings of at least 20 percent, similar to the average for the federal low-income Weatherization Assistance Program.
- There is no residential new construction program, which can provide benefits for both market-rate new home construction and also for targeted low-income new construction, like that done by Habitat for Humanity and other affordable housing providers. When we miss the opportunity to garner savings at the time of new construction, we are effectively giving up savings for anywhere from 10 to 30 or more years, depending on the building system (8-12 years for efficient refrigerators or hot water systems, 10-25 years for HVAC equipment, and 20-30 years for building shell measures). For measures with such long lives, it might be better practice to focus on how they might be done cost-effectively rather than dismissing them as non-cost effective without further consideration.

Q: WHAT ARE THE LONGER-TERM EFFECTS OF UNDERESTIMATING ACHIEVABLE POTENTIAL?

A: By setting the bar low through easily and rapidly achievable goals and targets, the DESC Potential Study does not provide the realistic and necessary groundwork for moving programs forward, cost-effectively, and to the benefit of South Carolinians.

The DESC Potential Study defines maximum ten-year program potential for DESC at incremental annual savings 0.7 percent of a reduced base sales in year 10.[17] DESC's peer utility Duke Energy Carolinas has already surpassed the 1.0 percent incremental level in achieved savings.[18] Estimating the achievable potential in ten years at less than what a utility operating in the same state has already achieved seems to be setting much too low a bar.

The DESC Potential Study itself shows the low level of the forecasted average savings when graphically compared to studies in neighboring jurisdictions. It was ranked in the lowest third of the studies, as 3rd lowest of nine studies that ICF considered comparable.[19]

[17] Recall that the 0.7 percent figure excluded from its denominator the forecasted sales of the portion of the customer base that had opted out.
[18] See Comments of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy, Docket 2018-72-E.
[19] DESC Potential Study, Figure 23.

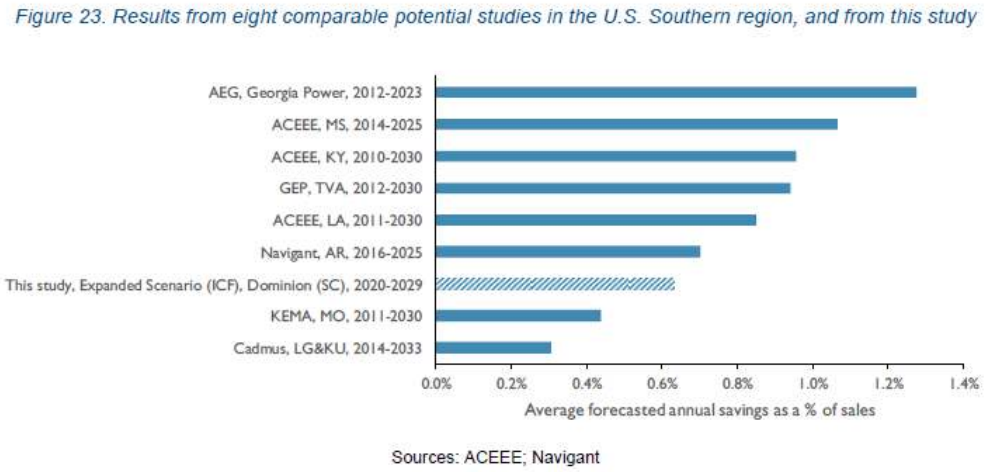

Figure 1. Results from eight comparable potential studies in the U.S. Southern region.

With a five-year cumulative potential of only 5.2 percent of available sales (or 3.9 percent of total sales), the DESC Potential Study underestimates the true potential for EE in DESC's territory. As with its estimate of annual potential, the DESC Potential Study's estimate of cumulative potential is also an outlier: In a 2018 study for the City of New Orleans, Optimal Energy benchmarked its results for New Orleans against eight comparable potential studies. Of the seven that had defined achievable potential, the lowest was 8 percent over a ten-year period.[20]

Q. ARE THERE OTHER FACTORS LIMITING DESC'S PROJECTED ENERGY SAVINGS?

A. Yes. First, as I mentioned earlier, the potential estimates do not include the C&I customers that are opting out of DESC EE programming. With 25 percent of the savings unavailable due to industrial and commercial opt-outs, the 5.2 percent cumulative savings

[20] Optimal Energy 2018, "Study of Potential for Electric Energy Savings New Orleans, Louisiana, Table 26. Comparables included Arkansas (8 percent over 10 years), Georgia Power(14 percent over 12 years), Mississippi (13 percent over 12 years), Missouri Ameren (16 percent over 15 year), Oklahoma (economic potential only), Pennsylvania (13 percent over 10 years), Austin, Texas (economic potential only), Tennessee (20 percent over 20 years).

after five years becomes even more unimpressive at 3.9 percent when calculated as total percent of total load.[21] With load growth estimated at 18 percent over the five-year period, there is an urgent need to use all cost-effective means to reduce energy use in the State, and DESC's proposed plan would not offset even a quarter of the projected growth.

It is important that the percentage goal relate to all sales rather than sales net of C&I customers that have opted out of DESC EE programming. Until and unless there are regulatory reporting systems to ensure that companies that opt out are making cost-effective investments in EE or DR, and that savings from those investments are fully reported and independently verified, there should be continued pressure on DESC to improve its C&I programming so that those customers can opt back in. I discuss this further below. There are many benefits to the utility providing these services, including market expansion and potential economies of scale.

In addition, I am concerned about the continued reliance on measures with very short measure lives like behavior savings at the expense of longer-term deeper savings that can result from HVAC and building envelope measures.[22] By suggesting a higher annual savings number, I do not mean to imply that I support short-term gains at the expense of long-term investment. On the contrary, I am be very supportive of goals couched in terms of lifetime savings, for example, instead of annual savings, to put a stronger focus on measures with longer lives.

[21] Derived from data in DESC Potential Study, Figure 4 and Table 12.
[22] The DESC Potential Study (Figure 12) shows the largest contribution to net incremental MWh savings in the residential sector in 2024 is from Home Energy Reports.

Q. IS THERE ANYTHING ELSE IN THE DESC POTENTIAL STUDY THAT INDICATES TO YOU THAT THERE ARE ADDITIONAL SAVINGS BEYOND WHAT ARE PROJECTED AS ACHIEVABLE?

A. I will point to one other indication of underestimation, though there are likely others beyond the scope of my testimony. The DESC Potential Study states that, "the full portfolio of programs has a levelized cost of energy saved that is firmly below the avoided cost of energy."[23] This indicates underestimation, even of program potential. The purpose of energy efficiency is to capture, through efficiency, savings that are less expensive than generation. This statement indicates that is not being done with this plan.

DESC SHOULD INCREASE ENERGY EFFICIENCY SERVICES TO HISTORICALLY UNDERSERVED MARKET SECTORS (LOW INCOME, MODERATE INCOME, MULTIFAMILY, AND SMALL BUSINESS).

Q. DO YOU HAVE ANY OBSERVATIONS ABOUT DESC'S PLANS TO EXPAND ENERGY EFFICIENCY PROGRAMS IN UNDERSERVED SECTORS?

A. Yes. I am pleased to see testimony from DESC that points to the benefits of increased levels of service to sectors that have been historically underserved by EE programs: low-income, moderate income, multifamily and small business. I recommend that as DESC ramps up these efforts, it look more deeply at the relevant best practices in other jurisdictions, and apply them to their program potential analyses as well as their program planning and implementation.

Q. WHY IS IT IMPORTANT FOR DESC TO EXPAND ENERGY EFFICIENCY SERVICES TO THE LOW-INCOME SECTOR?

[23] DESC Potential Study, page 26.

A. With a poverty rate at 14.1 percent, South Carolina ties with North Carolina for 11th highest poverty rate in our country.[24] With such high rates of poverty come high energy burdens, not because of higher use but because of lower household income.[25] On average, low-income people use less energy.

South Carolina has the third highest average residential electric bills in the contiguous United States. (See Figure 2.)

[24] This is at 100 percent of the Federal Poverty Level (FPL), or $12,060 for a one-person household and $16,240 for a two-person household. The FPL is the same for all 48 contiguous states in the U.S. Approximately 33 percent of South Carolina households are at 200 percent of FPL ($24,120 for a one-person household; $32,480 for a two-person household).

[25] Energy burden is the percent of a household's annual income needed to pay household energy bills. It is annual household energy costs divided by annual household income. The average energy burden for low-income households in the U.S. is approximately three times the average level for all households. (https://www.energy.gov/sites/prod/files/2019/01/f58/WIP-Energy-Burden_final.pdf).

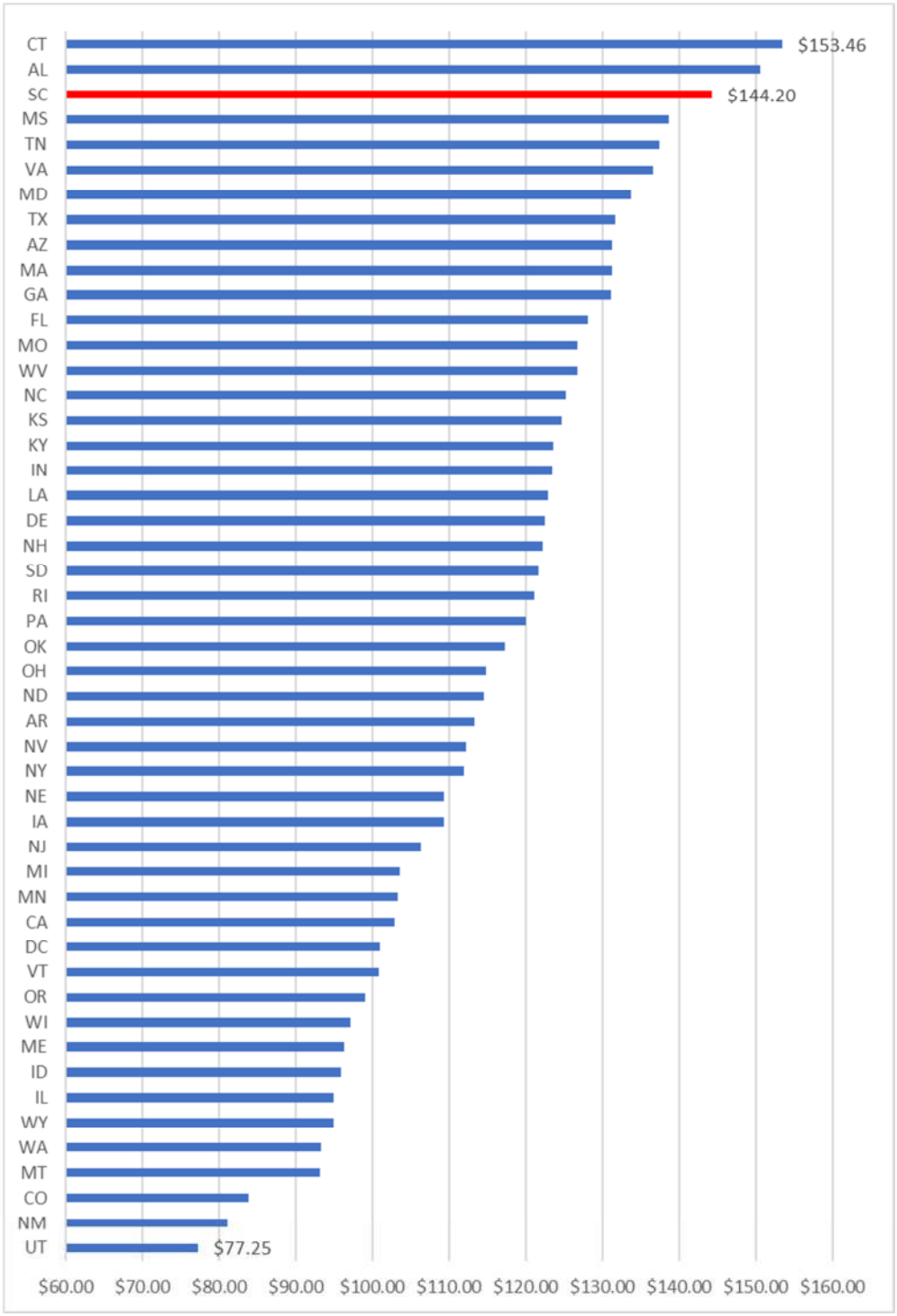

Figure 2. Average Monthly Residential Electric Bills, 2018. Source: EIA.

Some may argue that this comparison is not valid due to differences in both sources and uses of electricity across such wide jurisdictions. If we constrain to the South Atlantic region, as defined by the Energy Information Administration of the U.S. Department of Energy, South Carolina had the highest average monthly residential electric bills in 2018.[26]

Q. WHAT STEPS SHOULD DESC TAKE TO EXPAND THE BENEFITS OF ENERGY EFFICIENCY TO MORE LOW-INCOME CUSTOMERS?

A. I support the increased focus on delivering EE programs to low-income residential households in the proposal, but suggest that there is ample opportunity to expand both eligibility and programming to extend the reach of the benefits. In the current slate of proposed programs, the Total Resource Cost ("TRC") scores for the low-income programs are the second-highest of all programs. This suggests that there are other cost-effective opportunities to build into the programming. Such opportunities could include:

- Expanded measures: The measure list for the proposed low-income program that is contained in the DESC Potential Study could be expanded to include all electrically heated homes, not only mobile homes, air sealing, duct sealing, attic insulation, reflective roof coating, and programmable wi-fi thermostats. Ideally, blower door testing, including duct blaster tests, would be used to guide air-sealing efforts for maximum savings. Additionally, the following measures could be offered where cost-effective:

[26] South Atlantic region for EIA includes Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia.

- Refrigerator replacement
- Air source heat pump to replace electric resistance heat and central air conditioning
- Heat pump water heater to replace electric resistance water heater

- New manufactured homes: The expansion of measures for existing mobile and manufactured homes is a step in the right direction. DESC should also consider providing incentives that encourage purchase of more efficient manufactured homes. ENERGY STAR® manufactured homes provide long-term savings for low-income residents. Time of purchase is an ideal opportunity to ensure a lifetime of savings. Tennessee Valley Authority had an upstream model program in place for several years that produced impressive results. TVA found that working with manufacturers rather than purchasers or even retailers transformed the market, helping to move one producer that was a principal supplier in its territory to sell ENERGY STAR® models almost exclusively.
- Deeper average savings: An expanded list of measures should provide a deeper average savings level. The projected savings in the current program proposal provide savings of just over 1000 kilowatt hours per home. For an average home in South Carolina, this is only 8 percent savings. An expanded measure list should help to deepen savings on each home. The target should be at minimum 20 percent savings on average per home, roughly equivalent to the results gained by the low-income WAP.

- Eligibility: Program outreach can be expanded by reducing barriers to eligibility. Absent legal or regulatory barriers to increasing the income level threshold for household or neighborhood eligibility, maintaining such a low income threshold for eligibility unduly restricts participation in the programs. Many states have moved eligibility for low-income EE programs to at least 200 percent of federal poverty, which aligns with the guidelines of the low-income Weatherization Assistance Program. Others have gone even further, moving to 60-80 percent of state median income or area median income. This allows for better alignment with the eligibility requirements of affordable housing programs and can increase participation in low-income multifamily programs.

Q. ARE THERE STEPS DESC SHOULD TAKE TO EXPAND ITS ENERGY EFFICIENCY PROGRAMS TO BENEFIT MORE MODERATE-INCOME CUSTOMERS?

A. In their direct testimonies, DESC witnesses Griffin and Raftery discuss the important benefits that accrue when reaching out to households that are at low or moderate income.[27] Yet, there is nothing in DESC's proposal directed at the needs of moderate income residents. This is a market of interest to more and more utilities around the country, as many jurisdictions work to make the benefits of EE available to a wider and more equitable swath of their residents.

I encourage DESC to work with the Advisory Group, community stakeholders and community-based organizations to develop programs or approaches that meaningfully reduce the energy use of this subsector. Additionally, attention to this

[27] Griffin testimony, pages 13-14; Griffin testimony page 15; Griffin testimony page 25; Raftery testimony, page 4; Raftery testimony, page 6.

subsector should not wait another five years. A program approach might take the form of significant increases in the levels of incentives offered to residential customers as rebates for efficient equipment, or structuring low-cost financing with non-predatory lending organizations (such as a chartered community development financial institution) that fully understand the needs of moderate-income customers. Financing could be structured to be cash-flow positive with energy savings more than making up for the cost of a loan, and with protections if energy savings do not result as predicted.

Please also see my comments above about opportunities in manufactured housing. This is a target opportunity for moderate-income manufactured housing residents as well.

Q. ARE THERE OPPORTUNITIES FOR ENERGY EFFICIENCY IN THE MULTIFAMILY HOUSING SECTOR?

A. I support DESC's move into this complex and historically underserved market. Table 54 of the DESC Potential Study provides a program incentives summary for the multifamily program. The intended focus of programming on simple lighting and hot water measures within residential units and lighting and HVAC upgrades in common areas seems like it will be highly cost-effective, but will only scratch the surface of need in this sector. I encourage DESC to work with building owners to also include incentives for measures such as HVAC upgrades in residential units (especially if there is resistance electric heat), and insulation and air-sealing of multifamily buildings. These measures can drive deeper savings and increase affordability by reducing energy burdens over the long term.

DESC should also consider adding a comprehensive new construction / major rehabilitation program to work in tandem with affordable housing providers to ensure that

when new affordable housing units are being built or rehabilitated, every feasible cost-effective energy upgrade is made. This would address the phenomenon of "lost opportunities," in which housing providers and society are locked out of savings for anywhere from 10 to 30 years, depending on the building system. The number of utilities offering this type of program has increased with excellent results, including cost-effective energy savings for the program provider and long-term savings for the affordable housing providers and residents. Such upgrades should include consideration of all building systems, including HVAC, building envelope (including doors and windows), lighting, and appliances.

Some of the expansions of income eligibility that were discussed above can help in qualifying buildings in the multifamily sector.

Q. WHAT ARE YOUR RECOMMENDATIONS RELATED TO DESC'S PROGRAMMING FOR THE SMALL BUSINESS SECTOR?

A. The requirement that small businesses use less than 350 MWh per year seems unduly restrictive. Other states have wider eligibility guidelines for small business programming in the continued effort to provide better service to this underserved market sector. I recommend that this threshold be raised to at least 1,000 MWh of annual use. Massachusetts caps its service to small business at 1500 MWh per year,[28] and the small business program there saved 330,342 MWh and 964,103 therms during the most recent three-year program period (2016-2018) for which evaluated savings are available.[29]

[28] https://www.masssave.com/en/saving/business-rebates/.

[29] http://ma-eeac.org/wordpress/wp-content/uploads/2016-2018-Term-Report-Tables-Statewide-Electric.xlsx; http://ma-eeac.org/wordpress/wp-content/uploads/2016-2018-Term-Report-Tables-Statewide-Gas.xlsx.

While the scale would, of course, be different for South Carolina, the message is the same: Restrictive program rules can inhibit cost-effective savings.

In looking at projections for individual programs, I was also surprised that the cost per MWh saved for the Small Business Direct Install Program was lower than the cost per MWh figure for the C&I portfolio.[30] This is unusual. Generally, we see direct install programs having higher cost per MWh figures because there is no customer participation in costs. That could indicate that there is room for installation of a more robust measure mix in this program, including some measures that have higher costs and / or lower savings than the mix of measures installed now.

THE COMMISSION SHOULD SET BOUNDARIES ON DESC'S ABILITY TO CHANGE PROGRAMS OVER THE FIVE-YEAR PERIOD, WHILE ALLOWING DESC FLEXIBLITY TO ADAPT TO MARKET CHANGES.

Q. HOW CAN THE COMMISSION BALANCE THE NEED FOR OVERSIGHT WITH DESC'S NEED FOR FLEXIBILITY IN A TIME OF RAPID CHANGE?

A. There are ways in which the Commission could ensure adequate regulatory oversight of DESC's programs while keeping the door open for the rapid innovation that is occurring in this industry. One model is the Program Flexibility Guidelines approved by the North Carolina Utilities Commission for the Duke utilities, which set parameters for program changes without the need for Commission approval. I have attached a copy of this as Exhibit 1 to my testimony.

[30] Calculated figure from DESC Potential Study, Table 5, page 18.

At minimum, I recommend that DESC be required to revise and resubmit its portfolio of EE and DR programs if any of the following occur:

- Implementation of federal EISA lighting standards are delayed or eliminated: EE markets across the nation are dealing with the uncertainty of implementation of EISA. With lighting comprising large percentages of some EE portfolios, this has appropriately put savings goals and performance incentives into play. I strongly recommend that the portfolio of programs be reassessed by the Commission if federal lighting standards change.
- AMI rollout creates ability to design pilot programs or full market rollout of programs (see additional comments below on AMI rollout schedule)

I would also strongly encourage that the Commission mandate at least one mid-term review in year 2 or 3. Such review should include comments by interested stakeholders. The review should address changes in technology or market opportunities. Some important ones now include:

- New technologies: Advances in storage technology provide one example from the last few years of how new technological advances can change the economics of demand management. Keeping the door open so that the advances of new technologies and the business models that follow can be brought into EE / DR programming, especially when in the best interests of society but not necessarily in the best interests of the program administrator.
- New market models for EE, DR, and active demand management: The capacity for innovation in business models has always been a hallmark of the EE industry,

and it is proving to be so for the DR and DM markets as well. Jurisdictions around the country are encouraging and testing new business models for increasing EE, and better enabling DR and DM. Some of the new models rely on third-party vendors providing solutions that have an underlying revenue model rather than requiring full rollout of AMI as the only mechanism to provide DR / DM savings. With winter peak such a large issue in South Carolina, it would behoove the Commission and DESC to stay open to new business models and have a ready path for innovation to come forward, without constraining that the only path forward is through the utility.

THE COMMISSION SHOULD MAINTAIN THE EXISTING RATE OF SHARED SAVINGS AS SUFFICIENT INCENTIVE FOR DESC'S EE PROGRAMS, GIVEN EXPECTED INCREASES IN THE NET PRESENT VALUE (NPV) BENEFIT FROM ITS PROGRAMMING

Q. DO YOU SUPPORT DESC'S PROPOSAL TO INCREASE THE RATE RIDER CALCULATION FROM 6 PERCENT TO 11.5 PERCENT OF SHARED SAVINGS?

A. No. The level of shared savings proposed is too high, given the comparatively low level of proposed annual savings. The shared savings calculation that is part of the rate rider provides that the percentage allocation will be multiplied by the net present value of the benefits that the programs create (NPV-Benefits). As the proposed programs increase, NPV-Benefit will also be increasing commensurately, though the relationship is not necessarily a direct one-to-one dollar value increase. It is worth an example with numbers to show the effect:

	NPV-Benefit	Rate	Result
	$1,000,000	6.0%	$60,000

Increase NPV-B; hold rate	$2,000,000	6.0%	$120,000
Increase both NPV-B and rate	$2,000,000	11.5%	$230,000

If the NPV-Benefit doubles at the same time the rate of savings share goes from 6 percent to 11.5 percent, the result is a DESC share of benefits that does not increase by 100 percent (to $120,000 in the above example), but rather increases by 283 percent. Should the NPV-benefit be doubled with the approximate doubling of program investment and savings, I believe it should be sufficient for DESC to be compensated at the same rate but of the higher NPV Benefit. Doubling both the rate of shared savings and the NPV Benefit results in excessive compensation.

Such a large increase in shared savings might have been appropriate if proposed as at-risk compensation to a much more aggressive schedule of programs. I would tend to support a higher shared savings figure if it were proposed as conditional on achieving more ambitious goals, but the goals included in this plan cannot be considered so. At-risk compensation for EE program providers is a tried and tested tool to provide incentives for utility and non-utility program administrators. The metrics to which these are tied can be those that are important to the Commission.[31]

[31] Synapse Energy Economics has provided an excellent source of information on design of performance incentives and targets, written specifically for utility regulatory commissions. In it, the following are offered as design principles for performance incentives:

1. Consider the value of symmetrical versus asymmetrical incentives
2. Ensure that any incentive formula is consistent with desired outcomes
3. Ensure a reasonable magnitude for the incentive
4. Tie incentive formula to actions within the control of utilities
5. Allow incentives to evolve

From: Whited, M., T. Woolf, and A. Napoleon, "Utility Performance Incentive Mechanisms: A Handbook for Regulators," Synapse Energy Economics, 2015.

In short, I would recommend that the Commission only approve the increase in rate from 6 percent to 11.5 percent if it is structured as at-risk based on savings results that are at or beyond 0.8 percent of total sales..

Such a model should be established on a sliding scale so that at-risk compensation is not "all or nothing."[32] In such as case, the rate might increase by 1 percentage point for each tenth of a percent increase in the percent of total annual sales achieved above 0.8 percent, to a maximum rate of 11.5 percent. The following table helps to illustrate such a design.

Annual incremental savings (as a percent of total annual sales)	**Percent of NPV-Benefit to DESC**
0.8%	8%
0.9%	9%
1.0%	10%
1.1%	11%
1.15% and greater	11.5%

The sliding scale concept is a useful one in performance incentives because it provides motivation for the program administrator to continue to push its performance to higher and higher levels, rather than just meeting a minimum threshold and stopping its efforts for improvement of results.

Additionally, the Commission could build in "extra credit" for savings that accrue from programs serving underserved sectors, like low-income. An extra credit model could be as simple as providing an additional 50% credit for savings in low-income programming. An example of this, using the above scale would be if DESC booked 1.0

[32] All or nothing incentives can have perverse unintended consequences such as becoming the sole focus of attention if the utility is close to meeting the mark. Alternatively, if the utility is not even close to the target, an all-or-nothing incentive may have no incentivizing effect.

percent of total annual sales in savings, and 20 percent of the savings (or 0.2 percent) was from low-income programming.[33] In that case, the 0.2 percent of total sales that came from low-income programs would be increased to 0.3 percent (or an additional 0.1 percent), and the total credited for the year would be 1.1 percent, resulting in DESC earning 11 percent of the shared savings rather than 10 percent.

It is worth noting that the fact that a larger percentage of shared savings are available above the 0.8 percent of total savings level does not change the recommendation that the long-run goal should be a minimum of 1 percent by the end of PY14. That is the minimum target that DESC should be aiming for in this five-year plan. This incentive structure begins to provide incentive for achieving early gains above what DESC is already planning. Additionally, and to be clear: the denominator on all of these percentages is total annual sales, with no exclusion of the opted-out C&I base from total annual sales.

CONSIDER WAYS IN WHICH C&I RIDER CAN BE ADJUSTED TO REDUCE BARRIERS TO C&I CUSTOMERS OPTING BACK IN

Q: DO YOU HAVE ANY CONCERNS ABOUT THE PROPOSED RIDER REQUIREMENTS FOR INDUSTRIAL AND COMMERCIAL ACCOUNTS THAT HAVE OPTED OUT AND WISH TO PARTICIPATE IN DESC EE PROGRAMS?

A: I do. I agree with DESC that reducing the number of years required for payment of the rate rider is a good thing, and I question if it might be reduced even further or structured differently to encourage C&I customers to opt back into DESC EE programs.

[33] Please note that I am not expecting that 20 percent of savings would come from the low-income sector; I am only trying to use numbers that keep the example simple.

While I understand the rationale of requiring a specified number of years of payments of rider to participate in EE programs, I am concerned that the structure included in the DESC request could impede attempts to draw C&I customers back in. The eroding of the C&I base has implications for all customers, especially if there are not sufficiently strong mechanisms in place to ensure that these companies are making EE investments in their facilities.

Ultimately, the goal should be to provide comprehensive and cost-effective EE services to all DESC ratepayers. DESC should be as concerned as any other party about the level of opt-out, and should be willing to make an investment to bring some of those C&I accounts back. Utility and non-utility program administrators have found that C&I customers perceive positively the technical assistance that the utility provides to reduce energy costs.

I question if DESC's proposal is the right structure for ensuring that C&I customers pay their fair share while also not creating barriers to improved and coordinated efficiency investments with verified results that can benefit the whole system. Such a structure might include setting the length of mandatory rate rider participation based on the level(s) of incentive provided should a C&I customer opt back in and participate in programs.

Duke Energy Carolinas faced this same issue earlier in this decade. In a settlement agreement from 2013, Duke and other interested parties agreed to have one week per year

when a certain C&I customer could opt back in, with back-billing only going back to the date of the current effective annual rider rate.[34]

It is worth noting that in mature efficiency markets, there is evidence that C&I customers value the technical assistance they receive from their utility or third party administrator even more than they value the financial incentives provided. The strict focus on monetary values included in this rate rider adjustment does not account for the multiple non-monetary benefits that may be part of an C&I customer's calculus.

DESC HAS NOT COMPLIED WITH THE COMMISSION'S REQUIREMENT THAT IT DEVELOP DEMAND RESPONSE (DR) AND ENERGY EFFICIENCY PROGRAMMING TO ADDRESS WINTER PEAK.

Q. DO YOU BELIEVE THAT DESC HAS COMPLIED WITH THE COMMISSION'S DIRECTIVE AND ORDER IN DOCKET NO. 2018-2-E TO DEVELOP AND IMPLEMENT DEMAND RESPONSE PROGRAMS TO REDUCE WINTER PEAK DEMAND?

A. No. The winter peak-reduction benefits of DR programming have not been included in DESC's five-year plan. The Commission has made it clear that DR programming aimed at reducing winter peak was not only to be explored but also to be implemented: In its Directive Order in Docket No. 2018-2-E, the Commission adopted Commissioner Bockman's motion stating that, "I would strongly urge the utility to investigate and implement additional Demand-Side Management and Energy Efficiency measures targeted at reducing load during winter peak…"[35]

Only days later, the Commission ordered that, "SCE&G shall investigate and implement economic demand side management and energy efficiency programs with an

[34] Docket 2013-298-E, Settlement Agreement, October 29, 2013. ¶
[35] Docket No. 2018-2-E, Directive Order, Action Item 12, April 25, 2018, page 1.

emphasis on decreasing the newly developed winter peak."[36] The body of this Order explained that

> *it is imperative that the Company take all appropriate measures to aggressively pursue economic demand side management and energy efficiency programs, targeted at reducing the winter peak and repositioning the Company to once again recognize an avoided capacity factor for solar generators.*[37]

The Commission appears to have placed a high priority on this action, by stating "it is imperative." Compliance appears to require an effort that encompasses not only aggressive demand response, but also aggressive energy efficiency.

Q. DOES THE EE COMPONENT OF DESC'S DSM PROPOSED PORTFOLIO "AGGRESSIVELY PURSUE ECONOMIC . . . ENERGY EFFICIENCY PROGRAMS, TARGETED AT REDUCING THE WINTER PEAK AND REPOSITIONING THE COMPANY TO ONCE AGAIN RECOGNIZE AN AVOIDED CAPACITY FACTOR FOR SOLAR GENERATORS" AS ORDERED AS "IMPERATIVE" BY THE COMMISSION IN DOCKET NO. 2018-322(A)?[38]

A. No. As I have said, the EE programs proposed are not aggressive. The overall scale of the effort proposed for the next five years remains significantly below the achievement levels that have been already attained by neighboring utilities and other utilities in similar climate zones.

Q. DOES THE DEMAND RESPONSE COMPONENT OF DESC'S PROPOSED DSM PORTFOLIO "AGGRESSIVELY PURSUE ECONOMIC DEMAND SIDE MANAGEMENT…PROGRAMS"[39] TARGETED AT REDUCING THE WINTER PEAK AND RESTORING SUMMER PEAKING AS ORDERED BY THE COMMISSION IN XXX?

[36] Docket No. 2018-2, Order 2018-322, page 46.
[37] Id., page 15.
[38] Docket No. 2018-322(A), page 15.
[39] Docket No. 2018-322(A), page 15.

A. No. I do not think proposing no new DR programs for the next five years can be construed as "aggressive."

Q. WHAT IT YOUR OPINION OF DESC'S APPROACH TO WINTER PEAK REDUCTIONS AND RESTORING SUMMER PEAKING?

A. I am not an expert on utility projections of winter peak or summer peak restoration. It does not appear, however, that DESC even took the initial step of estimating the amount of winter peak reduction that would be needed to comply with Commission's Order 2018-322.

Q. IS THERE OTHER EVIDENCE THAT MAY SHED LIGHT ON THE MAGNITUDE OF WINTER PEAK REDUCTION THAT MIGHT REDUCE EXISTING AND PROJECTED WINTER PEAK?

A. Yes. In SC PSC Docket No. 2019-184-E, DESC Witness Lynch, testifies that "[t]he summer peak forecast and the winter peak forecast are close."[40] He states that "[t]his difference could easily reverse with a small change in customer load characteristics. For example, if the residential class contributes 3.410 kW per customer instead of 3.310 kW, the summer forecast would increase by about 65 MW while if the winter contribution decreased from 3.973 kW per customer to 3.873 kW, the winter demand would decrease by about 65 MW. **Under these circumstances, the summer peak demand would be larger than the winter peak demand."**[41] (Emphasis added.)

[40] Lynch Direct Testimony, Docket 2018-184-E, page 16, line 5.
[41] Lynch Direct Testimony, Docket 2018-184-E, page 16, lines 8-14.

Q. DOES DESC WITNESS LYNCH APPEAR TO GIVE A ROUGH ESTIMATE OF THE SCOPE OF PEAK DEMAND REDUCTION THAT MIGHT MEET THE GOALS IN COMMISSION ORDER NO. 2018-322?

A. Witness Lynch testified that the winter peak could "easily reverse."[42] One purpose of energy efficiency programs and demand response programs is to manage costly peaks like the DESC peak addressed in the Order. The per-customer winter peak demand reduction Witness Lynch mentions--from 3.973 kW per customer to 3.873 kW—is only about 2.5 percent. Well-designed and targeted EE and DR programs can achieve those savings, thereby helping the utility lower its overall costs to customers.

Q. ACCORDING TO THE DESC POTENTIAL STUDY, WHAT SIZE DEMAND REDUCTION DOES DESC'S CURRENT PROPOSAL PRODUCE?

A. According to the DESC Potential Study, DESC's current proposal produces demand reduction of 115.5 MW.[43]

Q. WOULD THE 115.5 MW OF DEMAND REDUCTION PROPOSED IN THE DESC POTENTIAL STUDY RESULT IN REDUCTION OF THE SAME AMOUNT FROM THE BASELINE DISCUSSED BY DESC WITNESS LYNCH?

A. That is not clear from DESC's filings. DESC would need to provide more detailed explanations of the winter and summer peak reductions from the EE programs they are proposing in order to see how the projected savings in demand relate to the savings necessary to reverse the winter peak.

Q. DID DESC WITNESS LYNCH POINT ANYTHING ELSE OUT?

[42] Lynch Direct Testimony, Docket 2018-184-E, page 16, lines 8.
[43] DESC Potential Study, page 53.

A. Yes. In Docket 2018-184-E, DESC Witness Lynch also testified that "it is not unreasonable to imagine that some of the significant drop in kW per customer contribution observed in the summer for both the residential and commercial classes might reverse in the near future as the economy improves."[44] Under that reasonable scenario, it would appear that the EE and DR programs would have greater value in the summer and they therefore may be undervalued in the DESC Potential Study.

Q. ARE THERE ANY PARTICULAR RESIDENTIAL MEASURES STRONGLY ASSOCIATED WITH WINTER PEAK?

A. Yes, electric resistance heating, which is sometimes referred to as "strip heating."

Q. DOES DESC'S CURRENT DSM PROPOSAL ADDRESS "STRIP HEAT"?

A. Yes, the Heating and Cooling program provides "rebates for the purchase and installation of high-efficiency home HVAC equipment." The five-year plan proposes a "new addition to the program is rebates for Air-Source Heat Pumps when replacing electric resistance heating."[45]

Q. ARE WINTER PEAK CONCERNS SUFFICIENTLY ADDRESSED BY MERELY REPLACING STRIP HEAT WITH HEAT PUMPS?

A. No. Ideally, HVAC equipment replacement is completed in combination with comprehensive air-sealing (shell and ducts) and insulation. In that way, new equipment can be sized for a reduced heating load. When building shell and duct improvements are made, the new heat pump will run less and save more.

[44] Lynch Direct Testimony, Docket No. 2018-184-E, page 16, lines 15-17.
[45] DESC Potential Study, page 11.

Q. WILL A PROGRAM THAT PROPERLY PROMOTES EFFICIENT HEATING AND COOLING REDUCE WINTER PEAK?

A. Yes. The DESC Potential Study indicates that the proposed Heating and Cooling and Water Heating Program provides the largest peak reduction of any of the proposed residential programs. As proposed, it will reduce winter peak by 13.5 MW, more than twice the winter peak reduction of the Home Energy Check-up Program, which has approximately the same total program costs over five years.[46]

Q. COULD FURTHER EXPANSION OF THIS PROGRAM HELP MEET THE WINTER PEAKING GOALS OF THE COMMISSION?

A. Yes. If it is expanded with high-quality home analysis and comprehensive infiltration and insulation services to customers, it would appear to meet exactly the need that has been discussed by Witness Lynch and other parties in the avoided cost dockets.

Q: THE PAST FEW QUESTIONS HAVE FOCUSED ON ENERGY EFFICIENCY—RATHER THAN DEMAND RESPONSE—AS A WAY TO REDUCE WINTER PEAK. CAN YOU ALSO ADDRESS WINTER PEAK REDUCTION EFFORTS THAT INCLUDE DEMAND RESPONSE?

A. The DESC Potential Study found cost-effective DR options, which DESC then determined were infeasible. One reason given was the lack of advanced metering infrastructure (AMI): "An important barrier to the cost effectiveness of these expanded DR measures was the lack of broad availability of AMI on DESC's system. However, the

[46] DESC Potential Study, Table 40, page 53.

DESC Potential Study showed that the rollout of AMI system-wide outside of the DSM context would support additional expansion of these DR programs."[47]

I am concerned that DESC is not looking at this matter as seriously and as comprehensively as possible, and that delay in implementing DR programs will continue to put upward burdens on South Carolina ratepayers due to projected increases in winter peak.[48] The DESC Potential Study found that by 2029, 55 percent of the projected winter peak load share was expected to be in the residential sector.[49]

Residential DR has been addressed effectively in North Carolina, specifically to address winter peak. Duke Energy Progress (DEP) has had success with a heat strip and water heater load control program in its Western North Carolina service territory, which is winter-peaking. There has been a collaboration between DEP, and the city and county to reduce peak demand in order to defer or avoid an investment to add 192 MW of generation. They set a MW reduction goal of 17 MW per year, and have 13 MW per year in winter demand response capacity. Combined with other efforts they have succeeded in deferring the generation investment beyond the IRP planning horizon.

Additionally, DEP received Commission approval for a plan to add DR to its EnergyWise Home Program in 2009. In 2018, the program was modified with approval

[47] DESC Request, Docket No. 2019-239-E, ¶29.
[48] I note here that, while the focus of this discussion is winter peak reduction through energy efficiency and demand response, EE and DR measures have a broader range of benefits that must be taken into account in program planning and implementation. This discussion is not meant to limit the assessment of EE and DR programs to effects on winter peak, only to assist the Commission in gaining effective implementation of its Order.
[49] DESC Potential Study, figure 27.

from the Commission to add load control via customer-owned smart thermostats. Subsequent measurement and verification has validated the savings. [50]

I would suggest, first, that the schedule being developed for the rollout of advanced metering infrastructure ("AMI") as part of the proceeding in Docket No. 2019-241-EG take into account the need for early DR action. For example, AMI rollout should be done in a manner that expeditiously creates opportunities for pilot programs or even fully implemented programs could be introduced to meet the Commission's mandate for implementation.[51] Program plan approval under the current docket should reference the work in this related docket so that the benefits of DESC's $98 million dollar investment in AMI can accrue to ratepayers as quickly as possible through DR programming.

Second, I discussed above the important role that new market models can play in this work. I would encourage DESC to work with potential third-party vendors to spark innovation in DR models that are not reliant on AMI.

The bottom line is that South Carolina cannot wait another five years to address this need. DESC should find the willing partners and business models to address winter peak demand now to comply with the Commission's mandate.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

[50] Direct testimony of Robert P. Evans, North Carolina Utilities Commission, Docket No. E-2, Sub. 1206, Exhibit 6, pages 14-15.
[51] Referred to in Direct Testimony by John Raftery, page 12, lines 10-23.

Exhibit 1

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Odom
Hedrp
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2 PSCO
3 PSLegal
3 PSACOS
3 PSelect

February 6, 2012

Gail L. Mount
Deputy Clerk
Office of the Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, NC 27699-4325

RE: Docket No. E-7, Sub 831

Dear Mrs. Mount:

Pursuant to Ordering Paragraph No. 5 of the Commission's November 8, 2011 *Order Approving DSM/EE Rider and Requiring Filing of Proposed Customer Notice* in Docket No. E-7, Sub 979, enclosed for filing are an original and thirty copies of Duke Energy Carolinas, LLC, Southern Alliance for Clean Energy, and the Public Staff's Joint Proposal regarding Commission program modifications.

Sincerely,

Robert W. Kaylor

Robert W. Kaylor

Encls.

cc: Parties of Record

Flexibility Guidelines Reference Documentation

Duke Energy Carolinas, LLC ("Duke Energy Carolinas" or the "Company") is committed to offering cost-effective energy efficiency ("EE") and demand-side management ("DSM") programs to eligible customers. The Company's ability to fulfill this commitment is largely dependent on its ability to make program changes in a timely manner. This flexibility is needed to ensure that the Company's portfolio of programs consists of efficiency measures that are both attractive and relevant to customers, and that drive them to take actions to install higher efficiency equipment.

On February 26, 2009, in Docket No. E-7, Sub 831, the North Carolina Utilities Commission ("NCUC" or the "Commission") issued its *Order Resolving Certain Issues, Requesting Information on Unsettled Matters and Allowing Proposed Rider to Become Effective Subject to Refund* ("Sub 831 Order"). The Sub 831 Order requires Commission approval of: (1) changes in program costs greater than 20%; (2) changes that resulted in program savings of greater than 20%; (3) any change to the participant incentives offered; (4) changes to the target customer group; (5) any changes that would result in the reassignment of costs and benefits from one class to another; or (6) any combination of the first five criteria. The Company believes that these flexibility guidelines provide it with the capacity to make changes to approved EE and DSM programs. Under the Company's interpretation of the guidelines, some program changes require approval from the Commission, while other changes can be made without Commission approval.

In the course of the Company's annual DSM/EE rider proceeding in Docket No. E-7, Sub 979, it became clear that the Public Staff potentially had a different interpretation of the flexibility guidelines in the Sub 831 Order than the Company, and that perhaps there needed to be more specificity regarding program flexibility. Accordingly, in its *Order Approving DSM/EE Rider and Requiring Filing of Proposed Customer Notice* issued November 8, 2011 ("Sub 979 Order"), the Commission directed the Company, the Public Staff and Southern Alliance for Clean Energy ("SACE") (collectively, the "Parties") to discuss revisions to the program flexibility requirements in the Sub 831 Order and file a joint proposal. Consistent with the Sub 979 Order, the Parties met to discuss the flexibility guidelines from the Sub 831 Order and believe that an agreement has been reached regarding what changes should require Commission approval and what changes should not require Commission approval.

The table below summarizes the Parties' agreement regarding program flexibility and identifies program changes which should require regulatory approval by the NCUC prior to implementation, those that should not require Commission approval but should require advance notice be filed with the Commission prior to making the program change, and finally those changes that simply require inclusion in a quarterly report that will notify the Commission of all program changes made without Commission approval or advance notice. The Company will continue to share potential program changes with the Public Staff and the Collaborative.

Type of Change	Description of Change	Prior NCUC Approval[1]	Advance Notice[2]
Tariff Revision	Any change to a program that is not explicitly allowed by the existing tariff language. Tariffs shall include information pertaining to the availability of, eligibility for, and applicability of the program, identification of specific measures offered, general description of each measure, maximum incentives offered ("up to $__ per customer, measure unit, etc."), and method(s) of measure delivery.	Yes	No
Addition of and Removal from Programs of Measures Actually Offered	The addition of any tariff-authorized measure as an actual offering of a program, and/or the alteration, removal, or replacement of any tariff-authorized measure actually offered as part of a tariffed program, including any such action involving equipment or participant options/choices:		
	1. That is not consistent with the language of the tariff.	Yes	No
	2. That results in the erosion of the forward-looking program-level TRC test ratio, causing it to fall below 1.05.[3]	Yes	No
	3. That results in a net 20% reduction in the forward-looking annual energy (kWh) or demand (kW) savings associated with the program, as calculated for the next full program year affected by the change.	No	Yes
	4. That results in the forward-looking present value of program costs increasing by more than 20%, or the forward-looking program-level TRC test ratio decreasing by more than 20%.[3]	No	Yes
	5. That results in the projected forward-looking net present value avoided cost savings from the program increasing by more than 20%, or the forward-looking program-level TRC test ratio increasing by more than 20%.[3]	No	Yes
	6. That does not fall into one of the five categories above.	No	No[4]

[1] Petitions for approval shall be filed no later than 30 days prior to proposed effective date, pursuant to Commission Rule R8-68.

[2] Advance notice shall be filed no later than 45 days prior to proposed effective date.

[3] If inadequate market information exists to develop a reasonable estimate of the TRC test ratio, the UCT test ratio may be used instead, with the TRC ratio being provided as soon as a reasonable estimate thereof can be determined.

[4] Program changes falling into this category shall be set forth in the quarterly Program Modification Report, as noted below.

Type of Change	Description of Change	Prior NCUC Approval[1]	Advance Notice[2]
Expansion or Reduction of Population to Which a Measure Will be Offered	Expansion of the offering/availability of a measure to other customer groups as authorized or allowed by the tariff but not previously included, or elimination of the availability of a measure to customer groups previously included:		
	1. That is not consistent with the language of the tariff.	Yes	No
	2. That results in the erosion of the forward-looking program-level TRC test ratio, causing it to fall below 1.05.[3]	Yes	No
	3. That results in the forward-looking present value of program costs increasing by more than 20%, or the forward-looking program-level TRC test ratio decreasing by more than 20%.[3]	No	Yes
	4. That results in the projected forward-looking net present value avoided cost savings from the program increasing by more than 20%, or the forward-looking program-level TRC test ratio increasing by more than 20%.[3]	No	Yes
	5. That does not fall into one of the four categories above.	No	No[4]
Changes to Measure Unit Savings or Baseline Standards.	Changes to the unit savings (kWh or kW saved per measurement unit) or efficiency standards for a measure, resulting from technological, regulatory, or other actions or determinations, that alter the incremental and/or baseline energy/load characteristics related to the measure and used to calculate incremental energy/demand savings:		
	1. That result in the erosion of the forward-looking program-level TRC test ratio, causing it to fall below 1.05.[3]	Yes	No
	2. That result in the forward-looking present value of program savings decreasing by more than 20%, or the forward-looking program-level TRC test ratio decreasing by more than 20%.[3]	No	Yes
	3. That result in the projected forward-looking net present value avoided cost savings from the program increasing by more than 20%, or the forward-looking program-level TRC test ratio increasing by more than 20%.[3]	No	Yes
	4. That do not fall into one of the three categories above.	No	No[4]
	Any such changes will be reflected in the next applicable EM&V provided the change occurred prior to the sample period used for the subsequent EM&V.		

Type of Change	Description of Change	Prior NCUC Approval[1]	Advance Notice[2]
Changes in Participant Incentives	Participant incentives associated with any actually offered measures shall not exceed the maximum incentive established in the tariff for the measure, on a per customer, kWh, or kW basis. Changes in actually offered participant incentives within the maximum limits set by the tariff:		
	1. That are not consistent with the language of the tariff.	Yes	No
	2. That result in the erosion of the forward-looking program-level TRC test ratio, causing it to fall below 1.05.[3]	Yes	No
	3. That result in the forward-looking present value of program costs increasing by more than 20%, or the forward-looking program-level TRC test ratio of the program decreasing by more than 20%.[3]	No	Yes
	4. That result in the projected forward-looking net present value avoided cost savings from the program increasing by more than 20%, or the forward-looking program-level TRC test ratio increasing by more than 20%.[3]	No	Yes
	5. That do not fall into one of the four categories above.	No	No[4]
Unit of Measure	Changes to the internal tracking of a measure component from the tracking initially established for the measure component.	No	No[4]
Changes in Estimates of Participant Cost	Changes to the estimated participant costs, unless provided for in the Program tariff or resulting from changes identified elsewhere in this table:		
	1. That result in the erosion of the forward-looking program-level TRC test ratio, causing it to fall below 1.05.[3]	Yes	No
	2. That result in the forward-looking program-level TRC test ratio decreasing by more than 20%[3].	No	Yes
	3. That result in the forward-looking program-level TRC test ratio increasing by more than 20%[3]	No	Yes
	4. That do not fall into one of the three categories above.	No	No[4]

Type of Change	Description of Change	Prior NCUC Approval[1]	Advance Notice[2]
Other Program Changes	Other program changes:		
	1. That are not consistent with the language of the tariff.	Yes	No
	2. That result in the erosion of the forward-looking program-level TRC test ratio, causing it to fall below 1.05.[3]	Yes	No
	3. That result in the forward-looking present value of program costs increasing by more than 20%, or the forward-looking program-level TRC test ratio decreasing by more than 20%.[3]	No	Yes
	4. That result in the projected forward-looking net present value avoided cost savings from the program increasing by more than 20%, or the forward-looking program-level TRC test ratio increasing by more than 20%.[3]	No	Yes
	5. That do not fall into one of the four categories above.	No	No[4]

In addition to reaching agreement on the Flexibility Guidelines, the Parties also agreed to provide the appropriate notification as defined in the Flexibility Guidelines. All program changes which require advance notice shall be filed no later than 45 days prior to the proposed effective date of the change using the Advance Notice Program Modifications Reporting Template. Should any party have concern about the proposed modification, it shall file comments with the Commission within 25 days of the Company's filing of the Advance Notice Program Modifications Reporting Template. A sample of the Advance Notice Program Modifications Reporting Template is included in this document. The Parties also agreed that on a quarterly basis, the Company will file a notification, using the Program Modifications Reporting Template below, with the Commission of program changes that have been made without Commission approval or advance notice. Attached is an example of the Program Modifications Reporting Template and Advance Notice Program Modifications Reporting Template.

In addition to the measurements required with respect to the above-described program changes, forward-looking TRC and other cost effectiveness test results shall be provided for review in each annual R8-69 cost recovery proceeding. In any case that a program has experienced a number of separate changes or modifications that have effectively changed the baseline for a program by 15%, one or more of the parties may request that the baseline TRC and other test results be reset for purposes of applying these Flexibility Guidelines. Additionally, whenever a change in a program goes into effect as a result of Commission approval or is allowed to go into effect after advance notice, the baseline TRC and other test results will be reset for purposes of applying these Flexibility Guidelines.

With regard to all program changes, the Parties note that neither Commission approval, the filing of advance notice, nor the inclusion of the changes in the quarterly Program Modifications Report precludes any party from taking issue with or the Commission from disallowing or amending a program change in a DSM/EE cost recovery proceeding, DSM/EE program approval proceeding, general rate case proceeding, or a similar proceeding.

For purposes of this discussion:

1. "Program" is defined as a group of DSM/EE measures that are appropriately bundled into a group for purposes of program delivery, marketing, and maximizing energy savings. Tariffs are developed for programs and include the availability and applicability of the program, and the customer eligibility requirements. Cost effectiveness is determined at this level. Example: Residential and Non-residential Smart Saver, Low Income and Weatherization, Residential Energy Assessment, Energy Efficiency in Education, Power Manager, and Power Share.

2. "Measure" is generally defined as a specific and individual activity or item of equipment that provides energy or demand savings. Examples include refrigerator replacement, HVAC heat pump, central air, ground source, lighting fixtures, LEDs, CFLs, etc. One measure may constitute the measurement unit by which the utility tracks costs and savings, or individual measures may be grouped into a single measurement unit. In each approved program tariff, the maximum incentive for each included measure and/or measurement unit will be set forth.

In addition to reaching agreement on the flexibility guidelines, the Parties also agreed that on a quarterly basis, the Company will file a notification, using the Program Modifications Reporting Template below, with the Commission of all program changes that have been made without Commission approval or advance notice. The attached Program Modifications Reporting Template is updated with some of the changes the Company had made prior to realizing there were some differences in the interpretation of the flexibility guidelines.

Program Modifications Reporting Template

The Program Modifications Reporting Template will include the following information as agreed upon by the Parties.

	Description
Program Name	The name of the program with the recommended or implemented program change.
Original Offer	A description of the original offer to program participant
Description of Change	Details of the change made to the program. For example, the incentive per participant was increased to drive program participation. Although the cost effectiveness per participant declined, the overall program cost effectiveness is expected to increase as a result of more program participants.
Type of Change	Identifies the type of program change made. Refer to the table entitled Type of Programs in this document on page one for a list of types of program changes and description of each change.
Date of Change	The date the change was implemented.
Delta of Change in Cost Effectiveness Test Results	Illustrates the impact that the program change has on the cost effectiveness tests. It reflects the changes in energy savings, program costs and projected participation versus what was reflected in the test results that were originally filed.
New Cost Effectiveness Test Results	The new cost effectiveness test scores based on implementation of the proposed program change.
Percent of Change in Program Cost	The percentage of change in program costs reflecting the proposed program change(s).
Absolute Change in Program Costs	The change in program costs reflecting the proposed program change(s).
Percent of Change in Projected Avoided Costs	The percentage of change in projected avoided costs reflecting the proposed program change(s).

Absolute Change in Projected Avoided Costs	The change in projected avoided costs reflecting the proposed program change(s).
Percent of Change in Program Impacts	The percentage of change in projected annual energy and demand savings reflecting the proposed program change(s), as calculated for the next full program year affected by the change.
Absolute Change in Program Impacts	The change in projected annual energy and demand savings reflecting the proposed program change(s), as calculated for the next full program year affected by the change.

Advance Notice Program Modifications Reporting Template

The Advance Notice_Program Modifications Reporting Template will include the following information as agreed upon by the Parties.

	Description
Program Name	The name of the program with the recommended or implemented program change.
Description of Proposed Change	Details of the proposed program change to be made.
Type of Change	Identifies the type of program change made.
Proposed Effective Date of Change	The proposed date to implement the change
Delta of Change in Cost Effectiveness Test Results	Illustrates the impact that the program change has on the cost effectiveness tests. It reflects the changes in energy savings, program costs and projected participation versus what was reflected in the test results that were originally filed.
New Cost Effectiveness Test Results	The revised cost effectiveness test scores reflecting the proposed program change(s).
Percent of Change in Program Cost	The percentage of change in program costs reflecting the proposed program change(s).
Absolute Change in Program Costs	The change in program costs reflecting the proposed program change(s).
Percent of Change in Projected Avoided Costs	The percentage of change in projected avoided costs reflecting the proposed program change(s).
Absolute Change in Projected Avoided Costs	The change in projected avoided costs reflecting the proposed program change(s).
Percent of Change in Program Impacts	The percentage of change in projected annual energy and demand savings reflecting the proposed program change(s), as calculated for the next full program year affected by the change.
Absolute Change in Program Impacts	The change in projected annual energy and demand savings reflecting the proposed program change(s), as calculated for the next full program year affected by the change.

Program Modifications Reporting Template

Program Name	Original Offer	Description of Change	Type of Change	Date of Change	Delta of Change				New Cost Effectiveness Test Results				Percent of Change in Program Cost	Absolute Change in Program Cost	Percent of Change in Projected Avoided Cost	Absolute Change in Projected Avoided Cost	Percent of Change in Program Impacts	Absolute Change in Program Impacts
					UCT	TRC	RIM	Participant	UCT	TRC	RIM	Participant					Impacts]	
Energy Efficiency Education[12]	The filed program offered eligible program participants the opportunity to receive an energy efficiency kit for completing a home energy audit.	The Energy Efficiency Education (EEE) Program was launched offering an EE kit to individuals that completed the home energy audit. Based on the audit response, the customer may qualify for additional CFLs. The opportunity for customers to qualify for additional CFLs was eliminated in September 2010. This change was implemented to mitigate the risk associated of customers receiving CFLs from the EEE Program and Residential Smart Saver® CFL program via the (IVR/Web) offering.	Measure Removal	September 2010														
		One 13 watt CFL bulb was added to the EE Kit.	EE Kit Modification	Prior to June 2009	(1.19)	(1.07)	(0.03)		2	2.03	0.79							

[5] Information provided will be marked as confidential.

Program Modifications Reporting Template

Program Name	Original Offer	Description of Change	Type of Change	Date of Change	Delta of Change				New Cost Effectiveness Test Results				Percent of Change in Program Cost	Absolute Change in Program Cost	Percent of Change in Projected Avoided Cost	Absolute Change in Projected Avoided Cost	Percent of Change in Program Impacts	Absolute Change in Program Impacts
					UCT	TRC	RIM	Participant	UCT	TRC	RIM	Participant						
Low Income Energy Efficiency and Weatherization Program	The filed program offered eligible program participants the opportunity to receive one six pack of CFLs and one energy efficiency kit for completing a survey.	Offered program participants 12 CFLS instead of the filed offer of 6 CFLs and 1 EE Kit.	EE Kit Modification	Prior to June 2009	(0.15)	(0.15)	(0.01)		1.84	1.84	0.66							
Low Income Energy Efficiency and Weatherization Program	The filed program offered eligible program participants the opportunity to receive one six pack of CFLs and one energy efficiency kit for completing a survey.	The Low Income CFL measure (12 pack of CFLs) was discontinued as an offering under Low Income Programs. The residential Smart Saver CFL program offers free CFLs to all residential customers in North and South Carolina through the automated IVR/Web platform. Duke Energy has served more low income customers through this offer. The participation rate through the residential Smart Saver CFL program has exceeded the participation rate in the Low Income Programs CFL offer from past years.	Measure Removal	January 2011	(1.62)	(1.62)	(0.39)		0.37	0.37	0.28							

Program Modifications Reporting Template

Program Name	Original Offer	Description of Change	Type of Change	Date of Change	Delta of Change				New Cost Effectiveness Test (CET) Results				Percent Of Change in Program Cost	Absolute Change in Program Cost	Percent of Change in Projected Avoided Cost	Absolute Change in Projected Avoided Cost	Percent Of Change in Program Impacts	Absolute Change in Program Impacts
					UCT	TRC	RIM	Participant	UCT	TRC	RIM	Participant						
Non-Residential Smart $aver Prescriptive [3]	The filed non-residential Smart $aver Prescriptive Program included measures with defined incentive amount.	Incentive measure additions, within the technology categories defined in the tariff, have occurred between filing and July 2010. Measure additions were made to the high efficient lighting (majority of additions), food service, motors/pumps/drive, and process categories.	Measure Expansion	Refer to the worksheet named NRPRES Measure Extensions for a detailed listing of measure extensions.	(0.03)	0.00	0.01	3.81	2.86	1.78	1.13	2.35						
Non-Residential Smart $aver Prescriptive [4]	The filed non-residential Smart $aver Prescriptive Program included measures with defined incentive amount.	A limited number of incentive measures originally filed have been removed from the program offerings since filing. Incentives for these measures continue to be available thru the Custom program with the exception of air cooled reciprocal chillers which are no longer manufactured.	Measure Removal	Refer to the worksheet named NRPRES Removed Measures for a detailed listing and explanation of measure removals.	0.01	(0.01)	0.01	(0.08)	2.62	1.79	1.13	2.37						
Non-Residential Smart $aver Prescriptive	The filed non-residential Smart $aver Prescriptive Program included measures with defined incentive amount	Incentive amounts were revised (both increased and decreased) were made to measures originally filed. Revisions were made within the 50% tariff incentive cap.	Measure Revision	Refer to the worksheets named NRPRES Increased Incentive Amts and NRPRES Decreased Incentive Amts for a detailed listing of changes.														

Program Modifications Reporting Template

Program Name	Original Offer	Description of Change[1]	Type of Change[1]	Date of Change	Delta of Change				New Cost Effectiveness Test Results				Percent of Change in Program Cost	Absolute Change in Program Cost	Percent of Change in Projected Avoided Cost	Absolute Change in Projected Avoided Cost	Percent of Change in Program Impacts	Absolute Change in Program Impacts
					UCT	TRC	RIM	Participant	UCT	TRC	RIM	Participant						
Residential Energy Assessments	The filed program offered eligible program participants the opportunity to receive an energy efficiency kit for completing energy efficiency audit.	The window film and a 15 watt CFL bulb was removed from the EE kit offered to Home Energy House Call Program participants. These two items were replaced with two 13 watt CFL bulbs. Also added additional CFLs, based on number of CFLs currently installed in the home, an average of 6.	EE Kit Modification	Prior to June 2009	0.00	0.00	0.00		2.56	2.56	0.74							
Residential Smart Saver[6]		Residential CFL program moved from a discounted coupon (retail) offer to a 'free' offer.	Measure Revision	March 2010	0.12	0.32	0.00	0.92	3.17	3.88	0.78	9.13						
Residential Smart Saver[6]		Residential Property Manager program allows Duke Energy to reach multi-family properties (i.e. rental customers). Duke Energy ships bulk CFLs to eligible Properties and the CFLs are installed in permanent fixtures of each unit. The Property Managers pay the shipping fee and reports installation data back to Duke. The program increases tenant satisfaction with Energy Efficiency lighting upgrades and is easy for properties to participate in the program.	Measure Expansion	March 2010	(0.16)	1.1.38	(0.01)	3.81	3.45	2.8	0.79	6.24						

[1] Type of Change description denotes the type of change implemented.

[2] Updated cost effectiveness scores reflect removal of a six pack of CFLs and adding one 13W CFL to the EE kit

[3] Updated cost effectiveness scores reflect removed measures, added and measures extensions added.
[4] Updated cost effectiveness scores reflect removed measures.
[5] Updated cost effectiveness scores reflect free CFL offer and Property Manager CFL.
[6] Updated cost effectiveness scores reflect addition of Property Manager CFL to as filed residential Smart Saver Program.

Advance Notice Program Modifications Reporting Template

Name	Description of Proposed Change	Type of Change	Proposed Effective Date of Change	Delta of Change				New Cost Effectives Test Scores				Percent of Change in Program Cost	Absolute Change in Program Cost	Percent of Change in Projected Avoided Cost	Absolute Change in Avoided Cost	Percent of Change in Program Impacts (kWh/kW)	Absolute Change in Program Impacts (kWh/kW)
				SUCT	TRC	RIM	Participant	SUCT	TRC	RIM	Participant						

Rationale for Program Change:

CERTIFICATE OF SERVICE

I certify that a copy of the of Duke Energy Carolinas, LLC, Southern Alliance for Clean Energy, and the Public Staff's Joint Proposal in Docket No. E-7, Sub 831, has been served by electronic mail (e-mail), hand delivery or by depositing a copy in the United States Mail, first class postage prepaid, properly addressed to parties of record.

This the 6th day of February, 2012.

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